REMARKS

Initially, in the Office Action dated May 6, 2004, claims 1-4, 9-12 and 17-20 have been rejected under 35 U.S.C. §112, first paragraph. Claims 1, 2, 4-6, 8-10, 12-14, 16-18, 20-22 and 24-26 have been rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 6,341,350 (Miyahara et al.). Claims 3, 7, 11, 15, 19 and 23 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

By the present response, Applicants have amended claims 1, 2, 9, 10, 17 and 18 to further clarify the invention. Claims 1-26 remain pending in the present application.

Examiner Interview Requested

Since Applicants were unable to setup an interview with the Examiner before the filing of this response, Applicants respectfully request that the Examiner call Applicants' representative, Frederick Bailey at 703 312-6600 to set up an interview after the Examiner has reviewed this response, and before issuance of any further Office Action.

Allowable subject matter

Applicants thank the Examiner for indicating that claims 3, 7, 11, 15, 19 and 23 would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

35 U.S.C. §112 Rejections

Claims 1-4, 9-12 and 17-20 have been rejected under 35 U.S.C. §112, first paragraph. Applicants have amended the claims to further clarify the invention. Applicants submit that groups G are located on the image data so as to cover all the image data. This is in accordance with a rule stored in the group array/location rule storage part 14. After this, the information embedding part 104 reads the digital watermark information. It would be well understood by one of ordinary skill in the art based on our disclosure that this locating is independent of (i.e., has no dependency on) the digital watermark information (see Applicants specification, page 13, lines 1-12, page 20, lines 5 - page 21, line 4, and Fig. 8). Accordingly, Applicants respectfully request that these rejections be withdrawn.

35 U.S.C. §103 Rejections

Claims 1, 2, 4-6, 8-10, 12-14, 16-18, 20-22 and 24-26 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Miyahara et al. Applicants have discussed the deficiencies of Miyahara et al. in Applicants' previously filed papers and re-assert all arguments submitted therewith. Applicants provide the following additional remarks.

Regarding claims 1, 2, 5, 6, 9, 10, 13, 14, 17, 18, 21, 22, 25 and 26, Applicants submit that Miyahara et al. does not disclose, suggest or render obvious the limitations in the combination of each of these claims of these claims of, inter alia, embedding digital watermark information corresponding to each of the T_1-T_n whose pixel values are changed to each of the digital watermark information b_1-b_n

and changing the pixel value of each area T according to a bit value, or locating the area G repeatedly, wherein the location of the area G thus located repeatedly being independent of the digital watermark information. Miyahara et al. discloses the pixel values of the whole area S being changed according to a predetermined pattern (the whole figure 6 X 4, Fig. 3) regardless of the bit value.

Regarding the embedding process, Miyahara et al. discloses the image data being divided into N-number G areas (column 2, lines 61-65). 1-bit information is assigned to each area G (the whole figure, 6 X 4, Fig. 3). If a bit value kth bit ($1 \leq k \leq N$) to be embedded in area Gk is 1, a watermark pattern is embedded. If a bit value is 0, a watermark pattern is not embedded (the original image remains unchanged)(col. 2, lines 58-61) (col. 5, lines 16-18) (col. 9, lines 30-35) ("on" and "off" correspond to 1 or 0 bits respectively). The area Gk in which a watermark pattern is not embedded (area whose kth bit is 0) is dependent on the bit information to be embedded and changes according to the bit information to be embedded.

Regarding the detecting method, Miyahara et al. discloses correlation values between a watermark pattern and the original image data being obtained as to each of the N areas (col. 2, lines 61-65), and the bit value of 1 or 0 is detected according to presence or absence of the watermark pattern (col. 2, lines 53-61)(col. 6, lines 12-17) (col. 11, line 57 - col. 12, line 4). If the watermark pattern is shifted due to image data processing, the watermark cannot be detected.

Moreover, Miyahara et al. discloses that if the bit value is 1, area G is located, and if the bit value is 0, the original image remains unchanged without using the area

G (col. 2, lines 53-65). Therefore, the existence or absence of the area G determines 1 or 0 of the bit value (col. 2, lines 53-61) (col. 6, lines 12-17) (col. 11, line 57 - col. 12, line 4).

The Examiner admits that Miyahara et al. does not disclose locating the area G repeatedly, wherein the location of the area G thus located repeatedly being independent of the digital watermark information, but asserts that these limitations in the claims of the present application would be obvious from the disclosure of Miyahara et al. at col. 6, lines 65-67 and col. 7, lines 1-11). However, these portions of Miyahara et al. merely discloses another problematic method of adding the accompanying information associated with image data using a special area on the image so that the components of the accompanying information are not changed by the aforementioned signal processing. This area is provided at only one part thereof, and therefore it is impossible to reserve a sufficient large area for a watermark pattern. For this reason, the evaluation value takes on a large value other than zero even when no accompanying information is added. Miyahara et al. further discloses that as a result, when an absolute evaluation criteria is used to judge that some accompanying information is appended if a predetermined threshold value is exceeded, detection of the accompanying information becomes very difficult, and that when the area to which the accompanying information is appended is only one part from a viewpoint of whole image sequence, it becomes considerably difficult to append plural pieces of information. For example, when the whole image is divided into k areas and then the accompanying information is appended to each of these

areas, a watermark pattern area for each of these areas becomes smaller depending on the number of these areas, and therefore detection of the accompanying information becomes substantially impossible.

This is not locating the area G repeatedly, wherein the location of the area G thus located repeatedly being independent of the digital watermark information, as recited in the claims of the present application. These portions merely discloses a problematic method of adding the accompanying information associated with image data using a special area on the image so that the components of the accompanying information are not changed by the aforementioned signal processing. This has nothing to do with the limitations in the claims of the present application, and one of ordinary skill in the art would have no motivation to use this method since, as Miyahara et al. has explained, it has several associated problems. Moreover, as has been discussed previously, the limitations in the claims of the present application relate to groups G being located on the image data so as to cover all the image data. The cited portions of Miyahara et al. do not disclose or suggest these limitations in the claims of the present application.

Regarding claim 4, 8, 12, 16, 20 and 24, Applicants submit that these claims are dependent of one of independent claims 1, 5, 9, 13, 17 and 21 and, therefore, are patentable at least for the same reasons noted previously regarding these independent claims. For example, Miyahara et al. does not disclose or suggest where each of the areas G includes the areas H_1 - H_m which have been predetermined in a location so as to be asymmetric in vertical and horizontal

directions in the area G in question, or contents of image processing carried out on the image data being judged.

Accordingly, Applicants submit that Miyahara et al. does not disclose, suggest or render obvious the limitations in the combination of each of claims 1, 2, 4-6, 8-10, 12-14, 16-18, 20-22 and 24-26 of the present application. Applicants respectfully request that these rejections be withdrawn and that these claims be allowed.

In view of the forgoing amendments and remarks, Applicants submit that claims 1-26 are now in condition for allowance. Accordingly, early allowance of such claims is respectfully requested.

To the extent necessary, Applicants petition for an extension of time under 37 CFR 1.136. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, or credit any overpayment of fees, to the deposit account of Antonelli, Terry, Stout & Kraus, LLP, Deposit Account No. 01-2135 (referencing attorney docket no. 566.38616X00).

Respectfully submitted,

ANTONELLI, TERRY, STOUT & KRAUS, LLP

Frederick D. Bailey
Registration No. 42,282

FDB/sdb
(703) 312-6600